DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-005028
Date Inspected: 28-Nov-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name:	Geng Wei, Zhang Bao Wei			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Assembly

Summary of Items Observed:

This report serves to document the events occurring on this date at the following location. Caltrans Quality Assurance (QA) Inspector Robert Vatcher arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

OBG Assembly Bay II

5AE- No Observed Welding Activity

5BE- No Observed Welding Activity

5CE- No Observed Welding Activity

3AE- No deck panel to deck panel or diaphragm plate to floor beam flange welding occurring as of this time at DP56A & DP55A or DP53A & DP7A. No fit up and tacking as well. These joints are ready to be fit up and tacked.

3BE- QA performed Welding procedure specification verification at SEG016*-016 deck panels DP63A & DP64A. QA observed for this operation the FCAW process utilizing 1.4 mm diameter Supercored 71H E71T-1 electrode wire in DCEP mode which was checked out of the station on 11/28/08 at 0700. Hong Yong Li 044801 the qualified welding operator was observed as well utilizing a stringer bead method for this evolution in the initial

root pass per the welding procedure specification WPS-B-T-223(2)1T. QA measured in-process temperature to be approximately 90 degrees celsius average, amperage to be 285 (average), voltage at 29.0 and a travel speed of approximately 200 mm per minute. ZPMC QC personnel Chen Chih Ming was present to measure and record this operation.

4AE- QA observed that deck panels DP72A & DP30A, DP31A & DP69A complete joint penetration welds are completely filled out by the SAW process.

4BE- QA observed the in process joining of SEG020A*-005 deck plates (situated atop of the segment) DP77A & DP43A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator chen Xi Feng 052692. Measured amperage at 680.0. Voltage at 32.0, travel speed at 500 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Zhang Xian Ji was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

Mid bay-

Fit up and tacking being performed at SEG008A-001 side plates SP187-001 & SP188-001 by qualified welder Sun Lingling 048047 in the flat position. QA performed a visual examination of this joint for compliance with AWS D1.5 (2002). Root opening was measured from .25 millimeters to 3.0 millimeters. As well the bevels appeared to be both 22.5 degrees for a 45 degree inclusive angel.

QA observed between bottom plates BPO303A & BP307A for segment SEG005A-006 where qualified welding operator He Junrong that welding related detritus existed directly in the root location where the welding arc was passing over. QA called over Zhang Bao Lei and apprised him of the situation. Mr. Lei immediately had the area power wire brushed and preheated. The above mentioned items as observed and documented by QA and QC corrected appears to be in conformance with the contract documents.

QA observed the in process joining of SEG006A-006 side plates BP306-001 & BP304-001 by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Chen Xi Feng 052692. Qualified welding status was verified by the presence of certification card from the welders pocket. Measured amperage at 580.0. Voltage at 32.0, travel speed at 460 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Wang Jie was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

QA observed the in process joining of SEG009A-005 side plates SP180-001 & SP179-001 by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator

Wang Min 048296. Measured amperage at 600.0. Voltage at 32.0, travel speed at 530 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Weng Jie was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well. QA did observe dirt on portions of the electrode however Weng Jie had the welder clean the electrode with a wire brush. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

QA observed the in process joining of SEG010A-005 side plates SP177-001 & SP176-001 by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Chen Xifeng 052692. Measured amperage at 589.0. Voltage at 31.0, travel speed at 440 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Huang Shuai was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

QA observed the in process joining of SEG010A-001 side plates SP181-001 & SP182-001 by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Min 048296. Measured amperage at 590.0. Voltage at 32.8, travel speed at 600 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Huang Shuai was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

Fit-up and tacking being performed at Bottom plates BP038-001 & BP092-001.

5CW- No Observed Welding Activity

5BW- No Observed Welding Activity

5AW- No Observed Welding Activity

4BW- Random minimum tack welds installed at diaphragm plate to floor beam flanges at panel point 27.

Deck panels DP76A & DP75A, DP73A & DP39A complete joint penetration welds are completely filled out by the SAW process.

No tack welds installed at diaphragm plate to floor beam flanges at panel point 26.

4AW- Deck panels DP27A & DP65A, DP68A & DP67A complete joint penetration welds are completely filled out by the SAW process.

Tack welds installed at diaphragm plate to floor beam flanges at panel point 25.

QA observed that deck panels DP68A & DP67A complete joint penetration welds are entirely filled out in the top portion by the SAW process. As well deck panels DP27A and DP65A are in the same condition.

3BW- Deck panels DP60A & DP59A, DP57A & DP15A complete joint penetration welds are completely filled out by the SAW process.

Random minimum tack welds installed at diaphragm plate to floor beam flanges at panel point 23. Tack welds permanent installation at diaphragm plate to floor beam flanges at panel point 22.

QA observed the in process joining of SEG015A-016 deck plates (situated atop of the segment) DP60A & DP59A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Lanying 045265. Measured amperage at 620.0. Voltage at 34.4, travel speed at 500 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Huang Shuai was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

QA observed that deck panels DP57A & DP15A complete joint penetration welds are partially filled out by the SAW process and require approximately two more passes to be complete.

3AW- Tack welds installed at diaphragm plate to floor beam flanges at panel point 21.

Deck panels DP52A & DP51A, DP49A & DP3A complete joint penetration welds are completely filled out by the SAW process.

North Bay of OBG Assembly- No Observed Welding Activity

North Sub-Assembly Area (Outside of OBG)-No observed joining operations

Summary of Conversations:

No relevant conversations this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Peter Dautermann, who represents the Office of Structural Materials for your project.

Inspected By: Vatcher,Robert Quality Assurance Inspector

WELDING INSPECTION REPORT

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Reviewed By: Cuellar,Robert QA Reviewer